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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,654	03/12/2001	Hongyong Zhang	07977/097003/US3176D1D1	1999

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EXAMINER	
DICKY, THOMAS L	

ART UNIT	PAPER NUMBER
2826	

MAIL DATE	DELIVERY MODE
09/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

09/804,654

Applicant(s)

ZHANG, HONGYONG

Examiner

Thomas L. Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-17 is/are allowed.
- 6) ☒ Claim(s) 2-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 08/763,225.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2826

## DETAILED ACTION

1. The amendment filed on 06/14/2007 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Takemura (5,508,533).

With regard to claims 2-5, Takemura discloses a method of manufacturing a semiconductor device, being an electroluminescent device, comprising the steps of forming a semiconductor film comprising amorphous silicon (note that Takemura discloses, column 4 lines 18-20, that "[a]n intrinsic (I-type) amorphous silicon film having a thickness of 300 to 1500 Å, e.g., 500 Å, was formed by plasma-assisted CVD (PCVD).") on an insulating surface 102, said semiconductor film having a first region 104 (on the left) and a second region 104 (on the right); simultaneously providing said first and second regions 104 (note that Takemura discloses, column 4 lines 27-28, that

Art Unit: 2826

"crystalline regions 104 were comparatively lightly doped with nickel.") with a crystallization promoting material comprising a metal selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au (or for that matter, Sc, Ti, V, Cr, Mn, and Zn or Ag. As long as Applicants are reciting a list of catalytic metals their colleagues at Semiconductor Energy Laboratories discovered many years before the priority date of this application, why do Applicants not recite the entire list?) for promoting crystallization of said semiconductor film; and heating said semiconductor film with said crystallization promoting material to crystallize said semiconductor film, wherein crystals grow from said first region 104 to said second region and the growth of the crystals terminates at said second region 104, as Takemura notes by stating, column 4 lines 28-29, "Crystals grown from two regions met each other, thus forming a crystal grain boundary 105'..."

Note figures 1A-1E, column 3 lines 56-67, and column 4 lines 1-39 of Takemura.

With regard to claims 6-9, Takemura discloses a method of manufacturing a semiconductor device, being an electroluminescent device, comprising the steps of forming a semiconductor film comprising amorphous silicon (note that Takemura discloses, column 4 lines 18-20, that "[a]n intrinsic (I-type) amorphous silicon film having a thickness of 300 to 1500 Å, e.g., 500 Å, was formed by plasma-assisted CVD (PCVD).") on an insulating surface 102, said semiconductor film having a first region 104 (on the left) and a second region 104 (on the right); simultaneously providing said

Art Unit: 2826

first and second regions 104 (note that Takemura discloses, column 4 lines 27-28, that "crystalline regions 104 were comparatively lightly doped with nickel.") with a crystallization promoting material comprising a metal selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au for promoting crystallization of said semiconductor film; and heating said semiconductor film with said crystallization promoting material to crystallize said semiconductor film, wherein said second region 104 functions as a stopper (note, column 4 lines 28-29, that "Crystals grown from two regions [meet] each other, thus forming a crystal grain boundary 105'...") for terminating the crystallization from said first region 104, and said crystal growth is substantially in parallel to said insulating surface. Note figures 1A-1E, column 3 lines 56-67, and column 4 lines 1-39 of Takemura.

With regard to claims 10-13, Takemura discloses a method of manufacturing a semiconductor device, being an electroluminescent device, comprising the steps of forming a semiconductor film comprising amorphous silicon (note that Takemura discloses, column 4 lines 18-20, that "[a]n intrinsic (I-type) amorphous silicon film having a thickness of 300 to 1500 Å, e.g., 500 Å, was formed by plasma-assisted CVD (PCVD).") on an insulating surface 102, said semiconductor film having a first region 105 (on the left) and a second region 104 (on the right); simultaneously providing said first 105 and second 104 regions (note that Takemura discloses, column 4 lines 25-28,

Art Unit: 2826

that "regions 105 were quite heavily doped with nickel...." and "crystalline regions 104 were comparatively lightly doped with nickel.") with a crystallization promoting material comprising a metal selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au for promoting crystallization of said semiconductor film; and heating said semiconductor film with said crystallization promoting material to crystallize said semiconductor film, wherein said second region 104 functions as a stopper (note, column 4 lines 28-29, that "Crystals grown from two regions met each other, thus forming a crystal grain boundary 105'...") for terminating the crystallization from said first region 105, wherein the first region and the second region are stripe-shaped (note, column 4, lines 5-6, that mask 103 may be provided with holes, making square or round regions, or slits, making stripe shaped regions. Applicants are in agreement, note paragraphs 0046-0047 of the instant application, that slits in the mask make stripe-shaped regions in the silicon film) and arranged in parallel with each other; and wherein widths of said first 105 and second 104 stripe-shaped regions are different from each other. Note figures 1A-1E, column 3 lines 56-67, and column 4 lines 1-39 of Takemura.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 2-13 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2826

***Allowable Subject Matter*****4. Claims 14-17 are allowed over the references of record.**

As shown above with reference to claims 10-13, Takemura shows a method of making an electroluminescent semiconductor device comprising the steps of forming a semiconductor film comprising amorphous silicon on an insulating surface 102, said semiconductor film having at least first 105 (on the left), second 105' (in the middle) and third 105 (on the right; note that the claim 10 "second" region is identical in form and function to the claim 14 "third" region) stripe-shaped regions arranged in parallel with one another wherein said second stripe-shaped region is located between said first and third stripe-shaped regions; simultaneously providing said first and third stripe-shaped regions 105 with a crystallization promoting material comprising a metal for promoting crystallization of said semiconductor film; and heating said semiconductor film with said crystallization promoting material to crystallize said semiconductor film, wherein a width of said second stripe-shaped region 105' is smaller than widths of said first and third stripe-shaped regions, and wherein said second stripe-shaped region 105' functions as a stopper for terminating the crystallization from said first stripe-shaped region 105. The claimed invention distinguishes itself from the Takemura method, however, in that the claim requires a step of simultaneously providing all three stripe-shaped regions (105,

Art Unit: 2826

105' and 105) with said crystallization promoting material. In the Takemura method, the first and third regions are simultaneously provided the said crystallization promoting material, but the second region 105' is provided with the crystallization promoting material at a slightly later time.

### ***Conclusion***

**5. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

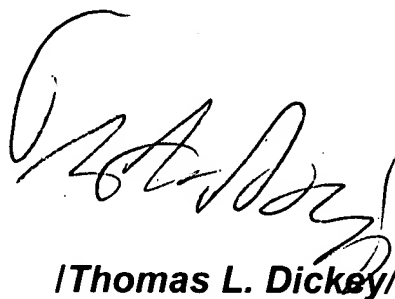
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L. Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.



Art Unit: 2826

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Sue A. Purvis, at 571-272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thomas L. Dickey', is positioned above the printed name.

**/Thomas L. Dickey/  
Primary Examiner  
Art Unit 2826**